

DESKTOP BROADCASTING

RUSH LIMBAUGH NOT SPOKEN HERE

Want real media anarchy? Just subscribe to any newsgroup on the Internet. Guaranteed massive info overload. What we really need is professionally produced media that boil down and clearly communicate the best ideas from all this randomness.

Carl Malamud has come up with a neat solution: Internet Talk Radio. This isn't pirate media. It's perfectly legal. But it's definitely revolutionary. It's a public news service for the Internet community, professionally produced in the style of NPR's "All Things Considered" and "transmitted" as a series of digital audio files available on the Internet. It reaches some 100,000 listeners in 30 countries, Malamud says. It makes the Internet a whole new broadcasting medium.

The file format is Sun Microsystems .au format (PCM files: 8 bits per sample, 8000 samples per second with a Sun header), but the public-domain Sound Exchange (SOX) program converts .au files for Mac, SGI, PC, etc. Just play the file through your sound card. A half-hour program is about 15 Mbytes.

GEEK OF THE WEEK

A popular radio program on Internet Talk Radio is *Geek of the Week* (technical interviews with key Internet personalities), sponsored by Sun Microsystems and book publishers O'Reilly & Associates. Internet Talk Radio also carries National Press Club luncheons, selected items from NPR satellite feeds, and two NPR shows: "TechNation" and "SoundPrint." As of mid-August, Malamud has produced 50 hours or 1.5 Gbytes of audio files. He's

also produced an Internet Town Hall meeting, with "call-ins" simulcast on the Internet and NPR.

Desktop broadcasting gives the listener more control. "Listeners can start, stop, rewind, or otherwise control the operation of the radio station," as Malamud puts it. "We can add a wide variety of different programming techniques. While listening, you might also scroll through a series of Gopher menus that hold more information about the program, or search a WAIS database for a biography of the speakers."

Malamud also wants to carry congressional hearings. And he has a scheme for sending almost-free faxes via Internet. Send e-mail to tpc-faq@town.hall.org for more info on this.

INTERNET INFOTAINMENT

What's next? Live broadcasts, Internet TV, and Internet Multimedia. "Multicast groups and videoconferencing tools allow the creation of live shows," says Malamud. "The NPR show was multicast over the Multicast Backbone (MBONE), a series of a few hundred sites on the Internet that have formed a 'virtual Internet' on top of the Internet for videoconferencing. The NPR show was sent out as live audio to these sites all over the world. Since the MBONE is used for videoconferencing, it was possible to have people 'speak' back to their radios: just like a call-in show, but using a computer instead of a telephone.

"Multicasting is a technique where a single piece of data is sent out to many different sites. If two sites are at the end of a pipe, only one copy of the data is sent over the pipe. Once it reaches the end, the

data is made into two (or more) copies and sent to the individual sites."

In his very readable *Exploring The Internet: a Technical Travelogue*, documenting his world travels to meet with Internet cognoscenti, Malamud describes multicasting, multimedia electronic mail, and lots of other interesting stuff.

KGBTV

What about Internet TV? Bandwidth and memory-intensive, but do-able! Recently, John Gage of Sun Microsystems freaked a congressional hearing by piping video and audio of their proceedings in real time out onto the Internet worldwide—including Beijing. To underscore the absurdity of export rules, Gage re-aimed an ex-KGB satellite over Washington to demo encrypted data transfer from Russia. He also demoed how pathetically easy it is to tap cellular phone calls by a simple PROM software hack, and he let the stunned congresspersons listen in. Their minds were suitably blown.

You can create your own radio shows and upload them to your system. And announce them on your fave Usenet newsgroup, of course. Or use the Internet to set up your own international broadcasting network by allowing your "local affiliates" to FTP (download) your audio file. You can also go direct to your listeners by simply announcing the FTP-able filename and Internet system address (they log on by typing `ftp <system name>`, change directory, and `get <filename>` to download the program), as with Internet Talk Radio.

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